

ABSTRACT OF THE DISCLOSURE

An apparatus for use in examining an object, such as skin, mucosa and cervical tissues for the purpose of detecting cancer and precancerous conditions therein. In one embodiment, the apparatus includes a gun-shaped housing having a handle portion and a barrel portion. The front end of the barrel portion is open, and a glass cover is mounted therein. Red, green, blue, and white LED's are disposed within the handle portion of the housing and are electrically connected to a battery also disposed within the handle portion of the housing. A manually-operable switch for controlling actuation of each of the four LED's is accessible on the handle portion of the housing. An optical fiber is disposed inside the housing and is used to transmit light from the four LED's through a first polarizer disposed in the barrel portion of the housing and then through the glass cover to illuminate a desired object. Reflected light from the object entering the housing through the glass cover is passed through a second polarizer, which is adjustably mounted in the barrel portion of the housing and which is preferably oriented to pass depolarized light emitted from an illuminated object, and is then imaged by optics onto a CCD detector. The optics may include a lens that is disposed within the barrel portion and is adjustably spaced relative to the CCD detector. The detector is coupled to a wireless transmitter mounted in the housing, the transmitter transmitting the output from the detector to a remotely located wireless receiver. The wireless receiver is coupled to a computer, which then processes the output from the detector. The processed output is then displayed on a display. The display may be remotely situated for remote expert diagnosis.